

# Use of and Expenditures on Outpatient Health Care by a Group of HIV Positive Individuals in Rwanda

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for Health  
Reform



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# Abstract

Nearly 11 percent of the Rwandan population is estimated to have HIV/AIDs making this one of the most important health issues facing the country. One of the key research questions has been on use and out-of-pocket expenditures on health services by this population. This study uses a sample of 348 HIV positive individuals who were either enrolled in a HIV/AIDS support group or sought care at two health facilities to examine their socio-demographic status, and their use and expenditures on health services. Those seeking health care were more likely to be female, between the ages of 25 and 44, widowed, with either primary or less education and with per capita consumption expenditures that were higher than the national average.

On average they had been HIV positive for over five years and in over a third of the households there was at least one other person who was HIV positive. They used over two visits per person in the last month implying a use rate of nearly 24 visits per year. The most common causes for health care visits were malaria, pneumonia, tuberculosis, and diarrhea. Expenditures on health care services by these individuals accounted for nearly 20 percent of household consumption and in over half the cases they had to borrow from friend and relatives to pay for care. An interesting finding was that the amount borrowed was much greater than the cost of health services indicating that part of it was being used to finance routine household consumption. In nearly 20 percent of the cases, in addition to borrowing from friends and relatives, individuals had to sell their assets to pay for care.

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# Acronyms

|              |   |
|--------------|---|
| <b>AIDS</b>  | Acquired Immune Deficiency Syndrome   |
| <b>CHK</b>   | Central Hospital Kigali   |
| <b>CRIS</b>  | <i>Centre Rwandais d'Information sur le Sida</i> (Rwandan Information Center on AIDS) |
| <b>FRW</b>   | Rwandan Franc   |
| <b>GDP</b>   | Gross Domestic Product  |
| <b>HIV</b>   | Human Immunodeficiency Virus  |
| <b>IEC</b>   | Integrated Educational Communication  |
| <b>MOH</b>   | Ministry of Health  |
| <b>NGO</b>   | Non Governmental Organization   |
| <b>PHR</b>   | Partnerships for Health Reform Project  |
| <b>PNLS</b>  | <i>Programme National de Lutte contre le SIDA</i> (National AIDS Control Program)     |
| <b>STI</b>   | Sexually Transmitted Infection  |
| <b>USAID</b> | United States Agency for International Development                                    |
| <b>WHO</b>   | World Health Organization   |

**CONVERSION RATE:** US\$ 1 = FRw 317 (1998)



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# Acknowledgments

The figures and estimates presented in this study are based primarily on data collected by the staff and officials in four Rwandan facilities, where people living with AIDS meet and receive medical, psychological, and social support. More than 300 people living with the virus dedicated their time to respond to the questionnaires. Staff and supervisors of the following institutions have contributed their efforts on these interviews:

- > Social workers from the health center Bilyogo in Kigali
- > Social workers from the Christian AIDS Association in Butare
- > Social workers from the center for pre- and post-test counseling CRIS in Kigali
- > Nurses and social workers from the Central Hospital of Kigali

To be acknowledged are all contributions and recommendations received by the representatives from National AIDS Control Program (*Programme National de Lutte contre le SIDA*) PNLS, AIDSMARK and UNAIDS Kigali, as well as from David Bishai, John Hopkins University Baltimore.

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# Executive Summary

Nearly 11 percent of the Rwandan population is estimated to have HIV/AIDS, making this one of the most important health issues facing the country. To date, estimates of expenditures on HIV/AIDS in Rwanda have suffered from many shortfalls including the absence of a consistent methodology, reliance on secondary data analysis, and a lack of information on private out-of-pocket expenditures. Under the global Partnerships for Health Reform, a project funded by the United States Agency for International Development, for the first time the National Health Accounts framework and methodology is being used to estimate expenditures on HIV/AIDS in Rwanda. This methodology will address some of the shortfalls in earlier studies.

This paper presents key findings from a survey of nearly 350 HIV-positive individuals who were either enrolled in a HIV/AIDS support group or sought care at four selected health facilities. The study examines their socio-demographic status, their use of and expenditures on health services, and how these expenditures were financed. On average individuals in the sample had been HIV positive for 4.52 years. For both males and females the most important reason for getting tested was that they had symptoms that made them think that they might be HIV positive. A second reason was that either their partner or another individual in the household had HIV. A key finding from this study was that HIV seriously impairs the ability of households to meet basic needs.

For the entire sample the annual per capita rate of health service utilization translated to 10.92 outpatient visits. This compares with a per capita use rate of 0.29 outpatient visits for the general population in 1998. However, significant differences emerged in use rates according to gender, marital status, income, and place of residence. Similar differences also emerged in terms of the level of expenditures on health services.

A key finding of this study is that 28 percent of households were able to meet the costs of health services exclusively from their own resources. Most households resorted to multiple ways to pay for health care including receiving assistance, borrowing, and selling assets. Sixty-six percent of households received some kind of assistance, 18 percent had to borrow money to pay for care, and 5 percent had to sell assets.

The study findings highlight the need for more systematic research to better understand the impact of HIV/AIDS on households. At a minimum, the findings highlight gender, income, and place of residence inequities in the use and expenditures on health services as well as the ability to mobilize non-household resources to pay for care. Clearly, policy interventions are required to address these inequities. Rwanda is one of the few countries that has developed and implemented a clearly articulated policy for dealing with the AIDS epidemic. However, given the current state of the economy, level of health expenditures, and reliance on donors for funding health costs, it is difficult to see the government being able to mobilize significant new resources to pay for expenditures on treatment for this population. Alternatively, the government should strengthen and expand its efforts to prevent the spread of this disease, and finance access to basic care for low-income groups.



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# 1. Introduction

The Partnerships for Health Reform (PHR) is the global flagship project on health sector reform and systems strengthening funded by the United States Agency for International Development (USAID). Through PHR, USAID aims to improve health policy and health system capacity and increase public and private sector resources for priority health services in developing countries. PHR seeks to improve people's health by improving health system performance to increase the use of high-quality sustainable priority health services. Currently, the PHR project is working with the HIV/AIDS Division of USAID to gather specific information on how global HIV/AIDS interventions are financed and managed.

PHR was specifically asked by USAID to collect data on the sources and uses of funding for HIV/AIDS services in Rwanda. Earlier studies to estimate HIV expenditures in Rwanda have been undertaken (i.e., Ernberg et al. 1998, Shepard 1998, UNAIDS 1998); however, the completeness of these estimates is affected by 1) a lack of a consistent methodology; 2) the reliance on secondary data analysis; 3) a focus on public expenditures; and 4) a lack of information on private out-of-pocket expenditures. PHR has suggested that the National Health Accounts (NHA) framework, a method for gathering national health financing and expenditure data from both the public and private health sub-sectors, including consumers, could be a more accurate tool to estimate expenditures on HIV. Because NHA tracks all expenditure flows across a health system and links the sources of funds to service providers and to ultimate uses of the funds, NHA can answer questions of: Who pays? How much? For what? The flow of funds that NHA depicts is critical to policymakers who seek to identify health system problems and opportunities for improvement, to develop and select the best resource allocation strategy, and to monitor impact and adjust policies. In the fall of 1999, the PHR project in collaboration with the Rwandan Ministry of Health (MOH) and the World Health Organization (WHO), developed a methodology to capture accurate estimates on the sources and uses of funding for HIV/AIDS in Rwanda using the NHA framework.

The National Health Accounts exercise in Rwanda has four objectives: 1) to first develop a methodology to collect HIV disease specific and program specific expenditures; 2) to test the methodology through data collection and analysis; 3) to integrate the results from the HIV data collection into the overall framework of NHA; and 4) to build the capacity of in-country nationals to replicate the NHA exercise. Ultimately it is hoped that as a result of this activity, the MOH will be equipped to better understand and track sources of funding and expenditures on health and HIV/AIDS and that the results of the NHA study could lead to improved resource allocation decisions.

Because the NHA model strives to show public, private, and out-of-pocket expenditures on health services, surveys designed to collect primary data from the different levels of programming were conducted. These surveys were also developed by PHR, in collaboration with the MOH and took place in hospitals, pharmaceutical companies, non-governmental organizations (NGOs), etc.

This paper presents the finding from the household survey on the use of and expenditures on outpatient health care by a sample of HIV positive individuals. The findings from this survey serve two important purposes: 1) to provide a snapshot of health expenditures at the household level that will add perspective to the overall picture of health expenditures on HIV in Rwanda; and 2) to add to the small body of literature that examines the impact of HIV on households (Over M. et al. 1998, Bechu 1998, Janjaroen 1998, Kongsin 2000). Included in the paper will be descriptions of the sample,

in terms of socio-demographics, how HIV has affected the quality of life for HIV positive individuals, where and by whom treatment was sought, per capita utilization rates, and how this care was financed.

---

## **1.1. Background on Rwanda**

Rwanda, located in sub-Saharan Africa, has a population of nearly 8 million people, half of which is below the age of 20 (Republic of Rwanda 1998c). Rwanda is a low-income country, with a per capita GDP in 1998 of \$252, which is well below the 1990 level of \$270. Nearly three-fourths of the population lives below the poverty line, and according to the World Bank; today more households are living further below the poverty line than before the genocide in 1994 (World Bank 1998a).

Despite the GDP growth rate of 9.6 percent in 1998, Rwanda's average annual growth projections for 1999 to 2003 fall to 6.8 percent (World Bank 1999b). Since the war in 1994, external resource inflows have contributed to the limited recovery of Rwanda's economic growth, rather than the recovery of productive capacity. In addition, Rwanda faces a bleak economic future as its external and domestic debt has risen rapidly, from just under \$400 million in 1985 to approximately \$1 billion in 1996, and to \$1.4 billion in total debt stocks (including arrears) by the end of 1998, equivalent to 72 percent of GDP.

Approximately 90 percent of Rwandans are active in the agriculture, the most labor intensive and least productive sector. The agriculture sector produces 37 percent of the country's GDP; coffee and tea remain the principal export crops. However, most agricultural production is still subsistence agriculture, primarily for household or community consumption. Industry and manufacturing constitute about 23 percent of GDP and employ 2 percent of the population; in comparison, the service sector produces 43 percent of GDP and employs 7 percent of the labor force (1998 figures).

Regarding health care, the per capita amount spent by the government of Rwanda has dropped significantly since before the genocide in 1994. In 1998, the Rwandan government spent \$6.80 per capita on debt service and \$1.30 on health. This amount represents a decrease in real terms from the pre-war target level of \$4.5 on health care (World Bank. 1999c). Table 1 shows how Rwanda's public health spending as a share of total government expenditures remained at a low 2.5 percent. NHA 1998 data reveal that 50 percent of the Rwandan health sector is financed by international organizations, 40 percent by private households, and 10 percent by the Rwandan government.



**Table 1: Summary Statistics Rwanda 1998**

|  |                    |
|--|--------------------|
| Total population                                     | 7,883,000          |
| Exchange rate  | US\$ 1 = FRw 317   |
| Total GDP (nominal) estimated                        | US\$ 1,992,681,388 |
| Total government expenditure and net lending         | US\$ 370,444,795   |
| Total health expenditures                            | US\$ 99,931,321    |
| Per capita health expenditure total:                 | US\$ 12.68         |
| Public   | US\$ 1.25          |
| Private  | US\$ 5.02          |
| International sources                                | US\$ 6.40          |
| Total health expenditures as percent of GDP:         | 5 %                |
| Public   | 0.5%               |
| Private  | 2 %                |
| International sources                                | 2.5 %              |
| Percent government total expenditure spent on health | 2.5%               |
| Sources of funds distribution:                       |                    |
| Public   | 9.2 %              |
| Public firms   | 0.7 %              |
| Private  | 39.6 %             |
| International  | 50.5 %             |

Note: Health-related expenditures based on Rwanda National Health Accounts.

## 1.2. HIV/AIDS in Rwanda

Sub-Saharan Africa has less than 10 percent of the world's population but it accounts for 80 percent of AIDS deaths, 70 percent of new infections, 95 percent of the world's AIDS orphans, and 90 percent of children with AIDS or with HIV infections (Bloom 1999). In Rwanda, the first AIDS cases were identified in 1983. In 1997, the Ministry of Health's National Program for the Control of AIDS (*Programme National de Lutte contre le SIDA*, PNLS) conducted a population-based sero-survey and identified approximately 11 percent of the adult population as HIV positive. Prevalence rates for both rural and urban areas were also included. In rural areas, the prevalence rate has increased from 1.3 percent in 1986 to 10.8 percent in 1997, rivaling rates found in urban areas. The highest prevalence rates (20 percent) were found among women in age groups 25-34, and among respondents working in the economically most productive service sector (16 percent–19 percent); females were up to two times more likely to be infected than men.

Despite the assumption that knowledge of HIV is estimated to be high due to widespread IEC (integrated educational communication) campaigns, significant behavior change is not documented and condom use remains low. The same study reports that 70 percent of commercial sex workers tested sero-positive and only 10 percent of them practiced protected sex, with clients determining the use or non-use of condoms. Rural and urban areas report a relatively high prevalence of sexually transmitted infections (STIs). According to PNLS, individuals with a history of STIs were two to three times more likely to be infected with the virus than those without previous infection, indicating that HIV could be widespread in the country. Also contributing to the spread of

the virus is the continued practice of wife inheritance and wife sharing among siblings in parts of rural Rwanda.

Community studies also conducted in Rwanda revealed that AIDS is highly stigmatized; in a survey it was found that 60 percent of the respondents refused to associate with a person who has AIDS (Republic of Rwanda PNLS 1998).

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### **1.3. The Government's Response to the HIV/AIDS Crisis**

Rwanda is one of the few countries that has developed and implemented a clearly articulated policy for dealing with the AIDS epidemic. In collaboration with its partners, the MOH and PNLS redefined Rwanda's HIV/STD/AIDS strategy in 1997 and a multi-sectoral approach was selected for the national guiding policy. In terms of actual programming, the Rwandan PNLS focuses its efforts on coordination, monitoring, and evaluation of HIV prevention, resource mobilization, and surveillance, while health regions are tasked with implementing preventive activities (Republic of Rwanda PNLS 1998).

Unfortunately, the success of this strategy is challenged by the gross lack of voluntary testing and adequate counseling in the country. HIV testing is being done only somewhat systematically in two public tertiary hospitals in Kigali and in Butare, and poorer patients are less likely to be willing to pay the out-of-pocket fees for the test, given the fact that a positive result will not improve their access to treatment. Based on physician interviews and review of patient records at the Central Hospital of Kigali (CHK), it is estimated that 60 percent of the patients hospitalized in the internal medicine department are assumed to be sero-positive. According to the hospital, patients are not generally screened for the virus, and those who are and do test positive are very likely not to be informed about their health status because of the lack of follow-up and stigmatization of the disease. District hospitals or health centers generally do not screen for the virus given there is no adequate follow-up for the patient. Clearly, the decision not to test individuals, or to inform individuals who have been tested of their HIV status, raises many ethical questions, and limits the government's ability to control the epidemic.

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### **1.4. Methodology of Data Collection**

In 1998 PHR, in collaboration with the MOH and WHO, initiated the first National Health Accounts for Rwanda, and in the fall of 1999 the HIV/AIDS component was integrated into NHA activity. In an effort to capture data on out-of-pocket expenditures on health services the researchers embarked on a survey to examine both the utilization of, and expenditures on outpatient health services by nearly 350 households that reported at least one sero-positive individual.

A first version of the household questionnaire developed by the researchers was presented to the NHA steering committee, which consists of representatives from the Ministry of Health, the Minister of Finance, the Rwandan National Bank, and donors, and is presided by the Secretary General of the MOH. The questionnaire was modified after receiving inputs and additional questions from the PNLS, UNAIDS Kigali, and AIDSMARK/PSI. The questionnaire was then pre-tested by social workers on 20 patients at the Rwandan Information Center on AIDS (*Centre Rwandais d'Information sur le SIDA*, CRIS), an HIV meeting and counseling center in Kigali.

The questionnaires were addressed to HIV positive individuals who were informed about their health status. Interviews were conducted in four health facilities, namely at the Central Hospital

of Kigali, an outpatient health center of Bilyogo in Kigali, CRIS, and at the AIDS association in Butare (Table 2). Interviews were conducted by social assistants who worked at one of the four facilities, and who had known the patient over a period of time and established a personal relationship with the patient. PHR's analyst supervised the data collection process.

**Table 2: Household Survey Collection Sites**

| Collection Site            | Description   | Interviewers        | Number of questionnaires |
|----------------------------|---|---------------------|--------------------------|
| CHK                        | Central hospital of Kigali. Only few patients knew about their sero-status, thus the small number of questionnaires.  | 6 social assistants | 12                       |
| Bilyogo                    | Health center in Kigali offering an AIDS service with currently more than 600 HIV patients and their families. Supported and headed by Spanish nuns.  | 4 social assistants | 193                      |
| CRIS                       | Rwandan Information Center on AIDS (Center for pre- and post-test counseling)   | 4 social assistants | 40                       |
| AIDS Association in Butare | Christian AIDS association in Butare headed by an Italian nun. Counts about 180 members, all sero-positive. Members benefit from limited financial support for basic food, clothing, and primary health care. | 3 social assistants | 105                      |

## 1.5. Study Objectives

This study is the first attempt to analyze the use of health services, expenditures, and how these services are financed by HIV positive individuals. Results of the survey will be integrated into the National Health Accounts framework, and will be used to estimate out-of-pocket expenditures by HIV positive individuals. It is also hoped that findings assembled will add to the small body of evidence on household level expenditures by those who have HIV/AIDS; and will inform public policy to deal with the AIDS epidemic in Rwanda.

## 1.6. Data Limitations

Data collection for this activity was constrained by two key factors: 1) only few health facilities provide HIV testing and identify their sero-positive patients; and 2) certain facilities test but do not inform patients about their status. For example, at the time of collection (January 2000), the CHK reported that no HIV test has been done during the prior four months (September–December 1999), limiting the number of eligible patients interviewed to 12. Generally, health centers and hospitals reasoned that because there is no follow-up treatment such as counseling or improved access to symptomatic treatment, patients would not need to be tested. Also, testing is not for free, thus, poor patients are less interested in paying an out-of-pocket fee for a test that will not improve their access to care once they are identified as sero-positive. Health facilities which provide HIV tests for free are often part of a research study on the subject (e.g., some health centers in district of Byumba).

Thus, the sample of individuals in this study would not represent the universe of those who have HIV for the following reasons: 1) the sample has a selection bias, because the participants in the study have been tested and are aware of their HIV status; 2) as it will be shown in the paper, the

majority of individuals were tested because they thought they were infected, or because they were experiencing symptoms of HIV, versus finding out their status during the course of testing.

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## 2. Results of Analysis

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### 2.1. Sample Characteristics

Table 3 provides the socio-demographic characteristics of the individuals interviewed. Of this sample, 85 percent were females; 69 percent were from urban areas; and less than 8 percent had secondary education or higher. The high percentage of females in the sample may indicate that women are more likely than men to enroll in support groups, as well as seek care and counseling. Similarly, the high proportion of urban residents in the sample likely reflects the fact those facilities and institutions that provide counseling and treatment tend to be urban based.

Given the age distribution of the sample, age groups were collapsed into the four categories shown in the table. Over 73 percent of the sample were between the ages of 26 and 45; half were widowed and only 13 percent were married. Household expenditures were also used to create expenditure quintiles that served as proxies for income. Using the expenditure quintile it was found that for this sample the median household expenditure was higher than that of the general population.

**Table 3: Sample Characteristics**

| <b>Category</b>      | <b>Females<br/>85% (n=293)</b> | <b>Males<br/>15% (n=53)</b> | <b>Total Sample<br/>100% (n=348)</b> |
|----------------------|--------------------------------|-----------------------------|--------------------------------------|
| Place of Residence:  |                                |                             |                                      |
| Urban                | 77.9%                          | 15.0%                       | 69.0%                                |
| Rural                | 22.1                           | 85.0                        | 31.0                                 |
| Age Groups:          |                                |                             |                                      |
| Less than 25         | 7.5                            | 0.0                         | 6.4                                  |
| 26-35                | 46.4                           | 26.4                        | 43.4                                 |
| 36-45                | 38.9                           | 45.3                        | 39.9                                 |
| 46 and older         | 7.2                            | 28.3                        | 10.4                                 |
| Marital Status:      |                                |                             |                                      |
| Single               | 19.5                           | 24.5                        | 20.3                                 |
| Married              | 8.0                            | 43.0                        | 13.0                                 |
| Widowed              | 54.0                           | 25.0                        | 50.0                                 |
| Divorced/Separated   | 4.0                            | 6.0                         | 5.0                                  |
| Co-habitant          | 14.0                           | 2.0                         | 12.0                                 |
| Education Level*:    |                                |                             |                                      |
| Primary              | 75.8                           | 66.7                        | 75.8                                 |
| Post-primary         | 17.0                           | 27.3                        | 17.0                                 |
| Secondary and higher | 7.3                            | 6.1                         | 7.3                                  |

\* Education level shown only for those who reported having gone to school.

Table 4 shows slightly more than 8 percent of the sero-positive patients lived in a one or two individual households, 45 percent had between three and five individuals, 34 percent had between six and eight individuals, and the remaining 12 percent had nine individuals or more. On average, a sample household counted 4.5 persons. In 26 percent of these households there was at least one person other than the respondent who was HIV positive.

**Table 4: Percentage Distribution of Households by Number of People**

| Number of People                                   | Percent |
|--|---------|
| Up to 2 persons                                    | 8.4%    |
| 3-5 persons  | 44.7    |
| 6-8 persons  | 34.3    |
| 9 or more persons                                  | 11.7    |
| Average number per household                       | 4.5     |
| Households with at least one other person with HIV | 26%     |

## 2.2. Diagnosis of HIV

Table 5 shows the length of time sero-positive patients have been informed about their health status. On average individuals in the sample had been HIV positive for 4.52 years. This is higher for females (4.63 years) than males (3.96 years). Forty-one percent of females and 32 percent of males had been HIV positive for five years or more.

**Table 5: Number of Years since Sero-Positive Diagnosis**

| Length of Time Diagnosed | Percent Distribution |            |            |
|--------------------------|----------------------|------------|------------|
|                          | Females              | Males      | Total      |
| < 1 year                 | 3%                   | 9%         | 4%         |
| 1-2 years                | 16%                  | 25%        | 18%        |
| 2-3 years                | 9%                   | 8%         | 9%         |
| 3-4 years                | 10%                  | 17%        | 11%        |
| 4-5 years                | 17%                  | 8%         | 16%        |
| 5-6 years                | 7%                   | 0%         | 6%         |
| 6-7 years                | 9%                   | 6%         | 9%         |
| > 7 years                | 25%                  | 26%        | 26%        |
| Total                    | 100%                 | 100%       | 100%       |
| Mean                     | 4.63 years           | 3.96 years | 4.52 years |

One of the primary study objectives was to discover the reasons that prompted the individuals in the sample to be tested for HIV. Table 6 shows that for both males and females, the most important reason an individual was tested was because they had symptoms that made them think that they might be HIV positive. A proportion of the individuals also decided to be tested because either their partner or another individual in the household was infected with HIV. Pre-natal tests and other tests leading to a HIV-positive diagnosis were given as a reason by a small proportion of the sample.

**Table 6: Reason for Getting Tested (Percent)**

| Category         | Percent Distribution |       |       |
|------------------|----------------------|-------|-------|
|                  | Females              | Males | Total |
| Had symptoms     | 25%                  | 41%   | 30%   |
| Was sick         | 44%                  | 68%   | 53%   |
| HIV in household | 8%                   | 6%    | 8%    |
| Partner had HIV  | 22%                  | 19%   | 24%   |
| Pre-natal test   | 6%                   | 0%    | 6%    |
| Blood test       | 5%                   | 9%    | 6%    |
| Other reasons    | 3%                   | 0%    | 3%    |
| Total            | 113%                 | 145%  | 130%  |

Note: Sum adds to more than 100% because multiple reasons given

### 2.3. Impact of HIV on Quality of Life

One finding that became evident from the survey was that HIV seriously impairs the ability of households to meet basic needs, such as paying for food, housing, education, and clothing. Table 7 shows that 73 percent of households were either unable to or meet with difficulty the food needs of the household. The corresponding percentages for other categories of basic needs are 57 percent for housing, 86 percent for education, and 82 percent for clothing. While longitudinal studies will be required to better understand the longer-term economic impact of HIV on households, these findings do indicate that the impact is probably quite severe.

**Table 7: Ability to Meet Basic Needs of Household**

| Category  | Very Well | Well  | With Difficulty | Unable |
|-----------|-----------|-------|-----------------|--------|
| Food      | 6.4%      | 20.4% | 55.8%           | 17.4%  |
| Housing   | 9.8%      | 32.4% | 34.6%           | 23.2%  |
| Education | 2.9%      | 11.6% | 44.9%           | 40.6%  |
| Clothing  | 1.7%      | 15.9% | 62.6%           | 19.7%  |

Table 8 shows the impact of HIV on the ability of the respondent to work. Table 9 shows the number of days of work missed in the past two weeks. While 67 percent of the respondents reported that HIV had no impact on their ability to work (Table 8), 56 percent reported that they had lost or missed at least one day of work in the past two weeks due to ill-health (Table 9). On average, respondents missed 4.8 days of work in the previous two weeks due to ill health. Nearly 35 percent of the respondents had missed at least one week of work, and 20 percent reported that they could not work at all in the past two weeks.

**Table 8: Impact of HIV on Ability to Work**

| Category                     | Percent |
|------------------------------|---------|
| No effect                    | 67%     |
| Affected ability for < 3mths | 18%     |
| Affected ability for >3mths  | 15%     |

**Table 9: Number of Days of Work Missed in Past Two Weeks**

| Number of Days                     | Percent         |
|------------------------------------|-----------------|
| 0                                  | 43.9%           |
| 1                                  | 1.7%            |
| 2                                  | 4.2%            |
| 3                                  | 5.9%            |
| 4                                  | 3.0%            |
| 5                                  | 4.6%            |
| 6                                  | 1.7%            |
| 7                                  | 10.1%           |
| 9                                  | 0.4%            |
| 10                                 | 2.5%            |
| 11                                 | 0.4%            |
| 12                                 | 1.3%            |
| 14                                 | 20.3%           |
| <b>Average Number of Days Lost</b> | <b>4.8 days</b> |

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## 2.4. Location of Facility and How These Were Reached

Table 10, 11, and 12 reveal that the vast majority of respondents used facilities that were in their community, were within walking distance. This could be both a reflection of the manner in which the sample was drawn as well as the fact that individuals in rural areas might live too far away and might not be able to pay to travel to urban centers for treatment. Reputation and the cost of care were other key factors that influenced that choice of facility (Table 11).

**Table 10: Location of Facility**

| Category              | Percent |
|-----------------------|---------|
| In the community      | 85%     |
| Outside the community | 15%     |



**Table 11: How Facility Was Reached**

| Category         | Percent |
|------------------|---------|
| Walked           | 62%     |
| Bicycle          | 1       |
| Bus or taxi      | 31      |
| Friend gave ride | 2       |
| By car           | 3       |
| Others           | 1       |

**Table 12: Reason for Choosing Facility**

| Category               | Percent |
|------------------------|---------|
| Condition not improved | 2%      |
| Distance from home     | 33      |
| Cost of care           | 11      |
| Reputation             | 17      |
| Employer required      | 3       |
| Specialty of care      | 2       |
| Referred               | 3       |
| Others                 | 28      |

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## 2.5. Utilization of Outpatient Health Services

Table 13 shows that 55 percent of the respondents reported at least one health-related visit to a facility in the past month. Thirty percent had one visit, 14 percent had two visits, and the remaining 11 percent had three visits.

**Table 13: Percent Distribution of Sample by Number of Visit**

| Number of Visits | Number of Persons | Percent |
|------------------|-------------------|---------|
| 0                | 156               | 45%     |
| 1                | 105               | 30%     |
| 2                | 47                | 14%     |
| 3                | 40                | 11%     |
| Total            | 348               | 100%    |

The visits in the past month were transformed into annual per capita use rates and these are presented in Table 14. For the entire sample the annual per capita use rate translated to 10.92 outpatient visits. This compares with a per capita use rate of 0.29 outpatient visit for the general population in health centers as reported for 1998 by the MOH Health Information System. Some interesting findings emerge from these results. While women formed a greater proportion of the sample, males used more health services per capita than females, although men's average diagnostic

time has been shorter. Those living in urban areas used over ten times the number of visits as those in rural areas reflecting probably both the lack of access as well as the inability to pay by the latter. Those who were married used more health care than the widowed. The lowest use rates were for those who were either single or divorced. This could reflect both health status as well as ability to pay. Not surprisingly, those in the highest expenditure quintile (5) had twice as many visits per capita as compared with those in the lowest expenditure quintile (1). Similarly, the lowest level of health care use was found among those who had only primary education. While these findings cannot be generalized to the entire population that is HIV positive it is clear that once individuals who are HIV positive decide to seek care at a health facility or counseling center they become high users of health care services.

**Table 14: Annual Per Capita Use Rate for Outpatient Visits**

| <b>Category</b>              | <b>Males</b> | <b>Females</b> | <b>Total Sample</b> |
|------------------------------|--------------|----------------|---------------------|
| Total Sample                 | 12.68        | 10.61          | 10.92               |
| <b>Place of Residence</b>    |              |                |                     |
| Urban                        | 13.06        | 34.89          | 26.45               |
| Rural                        | 6.00         | 2.34           | 2.45                |
| <b>Age Groups</b>            |              |                |                     |
| Less than 25                 | 0.00         | 7.64           | 7.64                |
| 26-35                        | 17.14        | 10.07          | 10.73               |
| 36-45                        | 12.00        | 11.68          | 11.74               |
| 46 and older                 | 9.60         | 11.43          | 10.67               |
| <b>Marital Status</b>        |              |                |                     |
| Single                       | 11.08        | 6.83           | 7.61                |
| Married                      | 15.13        | 12.52          | 13.83               |
| Widowed                      | 11.08        | 11.54          | 11.51               |
| Divorced/Separated           | 8.00         | 8.31           | 8.25                |
| Co-habitant                  | 12.00        | 12.00          | 12.00               |
| <b>Expenditure Quintiles</b> |              |                |                     |
| Quintile 1 (lowest)          | 4.00         | 8.63           | 8.19                |
| Quintile 2                   | 21.60        | 10.76          | 11.62               |
| Quintile 3                   | 9.33         | 8.89           | 8.95                |
| Quintile 4                   | 14.67        | 10.59          | 11.20               |
| Quintile 5 (highest)         | 18.86        | 15.75          | 16.45               |
| <b>Level of Education</b>    |              |                |                     |
| Primary                      | 11.45        | 11.14          | 11.18               |
| Post-primary                 | 29.33        | 20.14          | 22.38               |
| Secondary and higher         | 18.00        | 15.60          | 17.00               |

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## 2.6. Expenditures on Outpatient Health Services

Table 15 shows that annual per capita health expenditures by the respondents in the sample was \$63, which constituted a significant proportion of total household expenditures and was considerably above the average household per capita health expenditure of \$5 as reported by the total population in Table 1. Looking at the pattern of expenditures we see that not only do males use more health services per capita (see Table 15 for comparison), they also spend 2.6 times as much as females. Those living in urban areas spent nearly three times per capita as those living in rural areas. Individuals in the highest expenditure quintile spent over 13 times that spent by individuals in the lowest expenditure quintile and those who were married spend three times as much per capita as those who were widowed. Thus, those living in urban areas, those with higher incomes, and the married spent much more on a per capita basis for health services when ill.

**Table 15: Annual Per Capita Expenditures**

|                       | <b>Total FRw Per Capita</b> | <b>US\$</b> |
|-----------------------|-----------------------------|-------------|
| Total Sample          | 22,175                      | 63          |
| Gender                |                             |             |
| Females               | 17,724                      | 51          |
| Males                 | 46,780                      | 134         |
| Place of Residence    |                             |             |
| Urban                 | 15,821                      | 45          |
| Rural                 | 5,384                       | 15          |
| Expenditure Quintiles |                             |             |
| Quintile 1            | 6,302                       | 18          |
| Quintile 2            | 5,645                       | 16          |
| Quintile 3            | 10,287                      | 29          |
| Quintile 4            | 13,379                      | 38          |
| Quintile 5            | 84,813                      | 242         |
| Age Groups            |                             |             |
| Less than 25          | 17,534                      | 50          |
| 26-35                 | 17,960                      | 51          |
| 36-45                 | 27,145                      | 78          |
| 46 and older          | 22,527                      | 64          |
| Marital Status        |                             |             |
| Single                | 11,961                      | 34          |
| Married               | 63,735                      | 182         |
| Widowed               | 20,998                      | 60          |
| Divorced/Separated    | 4,950                       | 14          |
| Co-habitant           | 4,013                       | 11          |

| Level of Education   |        |     |
|----------------------|--------|-----|
| Primary              | 22,980 | 66  |
| Post-primary         | 77,092 | 220 |
| Secondary and higher | 53,640 | 153 |

Note: Exchange rate US\$ 1 = FRw 350 in 1999

Table 16 disaggregates health expenditures by type of service. For all categories, patients' expenditures on medicine accounted for the largest percentage of expenditures (61 percent). This was followed by consultation fees (13 percent) and then by tests (6 percent). Transportation costs accounted for less than 5 percent of expenditures for both urban and rural residents.

**Table 16: Percentage Distribution of Expenditures by Type of Service**

|                       | Fees | Medicine | X-Rays | Lab-Test | Transport | Others | Total |
|-----------------------|------|----------|--------|----------|-----------|--------|-------|
| Total Sample          | 13%  | 61%      | 6%     | 6%       | 4%        | 10%    | 100%  |
| Gender                |      |          |        |          |           |        |       |
| Females               | 14%  | 65%      | 8%     | 7%       | 4%        | 3%     | 100%  |
| Males                 | 11%  | 52%      | 3%     | 5%       | 4%        | 24%    | 100%  |
| Place of Residence    |      |          |        |          |           |        |       |
| Urban                 | 14%  | 55%      | 4%     | 3%       | 5%        | 20%    | 100%  |
| Rural                 | 13%  | 61%      | 4%     | 16%      | 5%        | 0%     | 100%  |
| Expenditure Quintiles |      |          |        |          |           |        |       |
| Quintile 1            | 15%  | 63%      | 3%     | 13%      | 5%        | 0%     | 100%  |
| Quintile 2            | 23%  | 47%      | 4%     | 11%      | 4%        | 10%    | 100%  |
| Quintile 3            | 10%  | 65%      | 9%     | 5%       | 11%       | 0%     | 100%  |
| Quintile 4            | 12%  | 50%      | 12%    | 19%      | 7%        | 1%     | 100%  |
| Quintile 5            | 12%  | 62%      | 6%     | 4%       | 3%        | 13%    | 100%  |
| Age Groups            |      |          |        |          |           |        |       |
| Less than 25          | 24%  | 72%      | 0%     | 3%       | 0%        | 0%     | 100%  |
| 26-35                 | 18%  | 59%      | 6%     | 9%       | 6%        | 3%     | 100%  |
| 36-45                 | 9%   | 57%      | 7%     | 4%       | 4%        | 18%    | 100%  |
| 46 and older          | 8%   | 77%      | 6%     | 7%       | 1%        | 1%     | 100%  |
| Marital Status        |      |          |        |          |           |        |       |
| Single                | 20%  | 54%      | 4%     | 9%       | 9%        | 3%     | 100%  |
| Married               | 15%  | 50%      | 7%     | 4%       | 3%        | 21%    | 100%  |
| Widowed               | 9%   | 72%      | 6%     | 7%       | 4%        | 2%     | 100%  |
| Divorced/Separated    | 45%  | 0%       | 32%    | 0%       | 23%       | 0%     | 100%  |
| Co-habitant           | 10%  | 58%      | 1%     | 6%       | 4%        | 21%    | 100%  |

| Level of Education   |     |     |    |    |     |     |      |
|----------------------|-----|-----|----|----|-----|-----|------|
| Primary              | 10% | 68% | 9% | 8% | 4%  | 2%  | 100% |
| Post-primary         | 16% | 53% | 3% | 4% | 1%  | 22% | 100% |
| Secondary and higher | 10% | 66% | 8% | 9% | 11% | 0%  | 100% |

## 2.7. How Health Expenditures Are Financed

How these households financed health care expenditures was an important question that researchers addressed in this survey. Nearly one-third (28 percent) of households were able to meet the costs of health services exclusively from their own resources, while 72 percent of the households surveyed, indicated that they could not finance their health care costs on their own.

Households unable to self-finance care resorted to multiple sources to pay for health care (Table 17). Sixty-six percent of these households received some kind of assistance, 18 percent had to borrow money to pay for care, and 5 percent had to sell assets. The high proportion of households that reported receiving assistance reflects community and church support systems that exist in Rwanda. In the absence of these the impact of health expenditures would have been even more catastrophic for these families.

**Table 17: Sources of Financing for Health Expenditures for Households Unable to Self-Finance**

| Category            | Percent |
|---------------------|---------|
| Received assistance | 66%     |
| Borrowed            | 18%     |
| Sold assets         | 5%      |

Table 18 shows the different sources from which respondents received assistance. The church was the single largest source of assistance followed by family and friends. In this sample, the sero-positive patients considered the role of non-governmental agencies, international organizations, and health insurance in meeting patients' costs of health care as negligible.

**Table 18: Source of Assistance**

| Category                   | Percent |
|----------------------------|---------|
| Family/Friend              | 12%     |
| Employer                   | 4%      |
| Church                     | 16%     |
| International organization | 1%      |
| NGO                        | 0%      |
| Health insurance           | 1%      |
| Other private sources      | 39%     |
| No assistance              | 28%     |
| Total                      | 100%    |

Those who reported having borrowed (18 percent) were asked from whom they had done so (Table 19). Sixty-four percent reported that they had received a loan from a friend or neighbor, 16 percent reported having borrowed from family, 7 percent had borrowed from banks, 5 percent from various non-governmental organizations, and the remaining 9 percent from other sources. Once again the family, friends, and community are the primary source of financial support in facilitating access to care for vulnerable population groups.

**Table 19: From Whom Borrowed**

| Sources         | Percent |
|-----------------|---------|
| Family          | 16%     |
| Friend/Neighbor | 64%     |
| Bank            | 7%      |
| NGOs            | 5%      |
| Others          | 9%      |
| Total           | 100%    |

Table 20 compares the cost per visit and how this was financed. For the sample of respondents we noticed that while patients' cost of the visit was US\$ 6.4 the individual received from assistance, borrowing, and sale of assets amounted to US\$ 44.7. This key finding combined with other results from the analysis would lead one to hypothesize that HIV seriously impaired the ability of the respondent to meet the basic needs of the household. Hence, not only had they to either seek assistance, borrow, or sell assets to meet the cost of care but they also had to use these resources to meet the other needs of the household. Quite clearly the large difference observed in this survey calls for a much more detailed study to better understand how HIV affects households.

**Table 20: Average Cost Per Visit, Average Amount of Assistance Provided per Visit, Average Amount Borrowed per Visit, and Average Sale of Assets per Visit (US\$ )**

|              | Average Cost per Visit | Average Amount of Assistance Provided per Visit | Average Amount Borrowed per Visit | Average Sale of Assets per Visit |
|--------------|------------------------|---|-----------------------------------|----------------------------------|
| Total Sample | \$6.40                 | \$21.32   | \$20.03                           | \$3.32                           |
| Gender       |                        |   |                                   |                                  |
| Females      | \$5.27                 | \$18.97   | \$21.04                           | \$1.13                           |
| Males        | \$11.64                | \$32.22   | \$15.35                           | \$3.80                           |
| Residence    |                        |   |                                   |                                  |
| Urban        | \$4.85                 | \$4.70  | \$3.64                            | \$0.26                           |
| Rural        | \$2.12                 | \$2.47  |                                   | \$0.08                           |
| Income       |                        |   |                                   |                                  |
| Quintile 1   | \$2.43                 | \$3.02  | \$0.01                            |                                  |
| Quintile 2   | \$1.53                 | \$2.29  | \$0.29                            |                                  |
| Quintile 3   | \$3.62                 | \$9.65  | \$0.70                            | \$0.50                           |

|                      | Average Cost per Visit | Average Amount of Assistance Provided per Visit | Average Amount Borrowed per Visit | Average Sale of Assets per Visit |
|----------------------|------------------------|---|-----------------------------------|----------------------------------|
| Quintile 4           | \$3.96                 | \$6.40  | \$4.84                            | \$1.18                           |
| Quintile 5           | \$16.26                | \$65.88   | \$70.43                           | \$11.26                          |
| Age Groups           |                        |   |                                   |                                  |
| Up to age 25         | \$7.24                 | \$6.26  | 0.0                               |                                  |
| 26-35                | \$50.28                | \$18.75   | \$12.75                           | \$0.20                           |
| 35-45                | \$7.35                 | \$3.01  | \$31.33                           | \$0.74                           |
| 46 and older         | \$6.85                 | \$2.58  | \$12.17                           | \$0.74                           |
| Marital Status       |                        |   |                                   |                                  |
| Single               | \$4.89                 | \$3.63  | \$0.26                            |                                  |
| Married              | \$14.86                | \$71.58   | \$53.12                           | \$16.43                          |
| Widowed              | \$5.79                 | \$14.95   | \$21.25                           | \$1.08                           |
| Divorced             | \$1.89                 | \$4.97  |                                   |                                  |
| Co-habitant          | \$1.08                 | \$6.68  | \$0.45                            |                                  |
| Education            |                        |   |                                   |                                  |
| Primary              | \$7.76                 | \$22.95   | \$25.89                           | \$8.28                           |
| Post-primary         | \$15.95                | \$40.03   | \$37.79                           | \$1.34                           |
| Secondary and higher | \$17.98                | \$78.15   | \$63.09                           |                                  |

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## 2.8. Results from Multivariate Analysis

We ran a series of multivariate analyses to further understand what factors affected the decision to seek care, the amount of health care used, the amount spent out-of-pocket, the probability of receiving assistance, and the amount of assistance received. The key findings are presented in this section.

### The Decision to Seek Care

In order to understand the determinants of making a visit to a health facility by sero positive individuals, a probit equation was estimated with having had a visit as the dependent variable. Key demographic and socio-economic variables such as age, gender, marital status, annual expenditure per capita, being employed, length of time the individual has been diagnosed sero positive, existence of other sero positive individuals in the family, and the individuals assessment of their quality of life were the independent variables. The level of education was highly correlated with being employed and annual per capita expenditures and we decided to drop it from the equation that was estimated. The education variable was not significant and by dropping it we did not lose any of the explanatory power of the estimation. Similarly, while the urban variable was not significant its sign was not stable when per capita annual expenditure was also introduced as a dependent variable. It was therefore decided to drop the urban variable from the final equation that was estimated.

The expenditure per capita variable is used as a proxy for income. Being employed is used as a proxy for the severity of disease. Based on the findings from the frequency tables we hypothesize that individuals who worked would be less likely to use health services as compared with those who were not employed.

Table 21 shows the results of the probit analysis. As expected being employed was found to be significant and negative. Higher annual per capita income was found to be positive and significant indicating that the probability of seeking care goes up with income. This result is in keeping with other studies on the demand for outpatient health services in general populations. The individuals' perception of their quality of life was found to be significant and negative. This means that those who felt the quality of life in the last four months was either poor or very poor were less likely to use care as compared with those who felt the quality of life was excellent, very good, or good. The other variable including age, gender, marital status, years since being diagnosed as sero-positive, having someone else in the household with HIV/AIDS were not found to be significant.

**Table 21: Probability of Making a Visit to the Health Facility**

| Variable                          | Visit (N=295)      |
|-----------------------------------|--------------------|
| Age                               | 1.336<br>(0.182)   |
| Male                              | 0.326<br>(0.744)   |
| Married                           | -0.868<br>(0.385)  |
| Employed                          | -3.458*<br>(0.001) |
| Annual per capita expenditure     | 3.398*<br>(0.001)  |
| Years since diagnosis             | 0.178<br>(0.86)    |
| Others in household with HIV      | 0.519<br>(0.604)   |
| Poor or very poor quality of life | -4.483*<br>(0.000) |
| _cons                             | 0.871<br>(0.384)   |

Chi-square 48.56

Pseudo R-square .1221

\* significant at 95% confidence interval



## Factors Determining the Number of Visits

We then took the sub-sample of those who had at least one visit to understand what factors determined the amount of services used. We ran an OLS (ordinary least squares) with the number of visits as the dependent variable. Even though Table 14 showed large differences in annual per capita use rates between urban and rural residents we dropped this variable because of its high correlation with the per capita annual expenditure variable. The results of the regression analysis are shown in Table 21. The results reveal that age was positive and significant meaning that once the decision to seek care had been made the number of visits went up with age. While being male was positive but insignificant in the decision to seek care it was negative and significant when it came to the total number of visits (Table 22). Similarly, while being employed was significant and negatively related to the decision to seek care, once that decision had been made it was significant and positive. This probably reflects the fact that those that are employed have better access to care. Not surprisingly annual per capita expenditures was significant and positively related to the total number of visits. Thus those with higher incomes were both more likely to use care and have more health visits. A disturbing finding was that as the number of years since diagnosis increases the total number of visits goes down. Given that one would expect health status to decline over time thereby increasing the need for health care a negative sign indicates inequity in access. Again a finding for concern is that those who thought their quality of life was either “poor or very poor” had fewer number of total visits. Once again this finding is probably indicative of inequities in the system and the inability of these individuals to afford health services.

**Table 22: Determinants of Total Number of Visits**

| Variables                         | Number of Visits (N=176) |
|-----------------------------------|--------------------------|
| Age                               | 1.950*                   |
|                                   | (0.053)                  |
| Male                              | -2.049*                  |
|                                   | (0.042)                  |
| Married                           | 1.671                    |
|                                   | (0.097)                  |
| Employed                          | 2.040*                   |
|                                   | (0.043)                  |
| Annual per capita expenditure     | 4.325*                   |
|                                   | (0.000)                  |
| Years since diagnosis             | -1.791*                  |
|                                   | (0.075)                  |
| Others in household with HIV      | 0.233                    |
|                                   | (0.816)                  |
| Very poor or poor quality of life | -2.867*                  |
|                                   | (0.005)                  |
| _cons                             | 4.127                    |
|                                   | (0.000)                  |

R-square = .232

\* significant at 95 % confidence interval

## Factors Determining Level of Expenditures

Next we tried to determine what factors influence the total expenditure incurred by sero-positive individuals, who have had at least one visit to the health facility, for AIDS related health care. Table 23 presents the results of the analysis. Those who were employed spent less probably because they were healthier and used less care. At the same time annual per capita expenditures (a proxy for income) was significant and positively related to expenditures on AIDS related care. The negative sign for the quality of life variable is probably due to the fact that the total number of visits is lower for them. This only reinforces the argument that equity in accessing care remains a matter of concern for these individuals.

**Table 23: Determinants of Total AIDS Health Care Expenditure**

| Variables                         | N=176              |
|-----------------------------------|--------------------|
| Age                               | 0.514<br>(0.608)   |
| Male                              | -0.052<br>(0.959)  |
| Married                           | 0.838<br>(0.403)   |
| Employed                          | -2.589*<br>(0.010) |
| Annual per capita expenditure     | 11.102*<br>(0.000) |
| Years since diagnosis             | 0.554<br>(0.581)   |
| Others in household with HIV      | 1.464<br>(0.145)   |
| Very poor or poor quality of life | -2.545*<br>(0.012) |
| _cons                             | -0.371<br>(0.711)  |

R-square = .4954

\* significant at 95 % confidence interval

Statistically significant factors that influence whether an individual receives assistance or not depends on age, annual expenditure per capita (proxy for income), and the number of other sero positive individuals in the family. As expected, higher income decreases the probability of getting assistance, and so does the existence of other sero positive individuals in the household (Table 24). It is interesting to note that age, barely significant, is negatively correlated, implying that a younger individual is less likely to receive assistance as opposed to an older one.

**Table 24: Probability of Receiving Assistance**

| Variable                          | N=176              |
|-----------------------------------|--------------------|
| Age                               | -1.776*<br>(0.078) |
| Male                              | -0.879<br>(0.381)  |
| Married                           | 1.359<br>(0.176)   |
| Employed                          | -0.969<br>(0.334)  |
| Annual per capita expenditure     | -2.289*<br>(0.023) |
| Years since diagnosis             | -0.462<br>(0.644)  |
| Others in household with HIV      | -1.936*<br>(0.055) |
| Very poor or poor quality of life | 0.081<br>(0.936)   |
| _cons                             | 6.393<br>(0.000)   |

R-square=.1051

\* significant at 95 % confidence interval

Once an individual receives assistance, as indicated in the table below (Table 25), his or her marital status and level of annual expenditure per capita (proxy for income) determine the amount of assistance. It is interesting to note that, according to the earlier results, higher income actually lowers the probability of receiving assistance, however, once you receive assistance, higher income implies more assistance.

**Table: 25: Determinants of Amount of Assistance Received**

| Variables                     | N=119             |
|-------------------------------|-------------------|
| Age                           | 0.470<br>(0.6439) |
| Male                          | 0.013<br>(0.990)  |
| Married                       | 3.413*<br>(0.001) |
| Employed                      | -0.384<br>(0.702) |
| Annual per capita expenditure | 6.467*<br>(0.000) |

|                                   |          |
|-----------------------------------|----------|
| Years since diagnosis             | -1.505   |
|                                   | (0.135)  |
| Others in household with HIV      | -1.151   |
|                                   | (0.252)  |
| Very poor or poor quality of life | 1.174    |
|                                   | (0.2473) |
| _cons                             | -0.717   |
|                                   | (0.475)  |

R-square=.4543

\* significant at 95 % confidence interval

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## 3. Conclusions

In Rwanda, as in other countries, HIV/AIDS is not only a health problem but has strong social and economic dimensions, and is competing for limited resources with other urgent health care demands such as malaria, diarrhea, and respiratory infections. The findings from this study seem to indicate that females might be more likely to enroll at facilities, as well as seek care and counseling. On average individuals in the sample had been HIV positive for 4.52 years. This is higher for females (4.63 years) than males (3.96 years). For both males and females the most important reason for getting tested was that they had symptoms that made them think that they might be HIV positive. Following this it was either their partner or another individual in the household having HIV. Routine pre-natal tests and other tests leading to a HIV positive diagnosis was given as a reason by a small proportion of the sample. These findings confirm our earlier observations that routine testing for HIV is not common, and, given the stigma attached to this condition, even when tests show the person to be sero-positive these findings are not communicated.

A key finding from this study was that HIV seriously impairs the ability of households to meet basic needs. Nearly three-quarters of the households either were unable to or met with difficulty the food needs of the household. In the same respect most of the households could not meet other basic needs. Findings indicate that 57 percent of the households could not meet their basic need for housing, 86 percent did not meet basic education needs, and 82 percent of those indicated that they could not cover all of their basic clothing needs. Also, on average, respondents missed 4.8 days of work due to ill health in the preceding two weeks. Nearly 35 percent of the respondents had missed at least one week of work, and 20 percent reported that they could not work at all in the past two weeks. While longitudinal studies will be required to better understand the longer-term economic impact of HIV on households, these findings do indicate that the impact is probably quite severe.

While these findings cannot be generalized to the entire population that is HIV positive, it is clear that once individuals who are HIV positive decide to enroll with a health facility or counseling center, they become high users of health care services. For the entire sample the annual per capita use rate translated to 10.92 visits. This compares with a per capita use rate of 0.29 outpatient visits for the general population in 1998. However, significant differences emerged in use rates by different characteristics. While women formed a greater proportion of the sample, males used more health services per capita than females. Those living in urban areas used over ten times the number of visits as those in rural areas, reflecting the more limited access as well as limited income among rural respondents. Those who were married used more health care than the widowed and those in the highest expenditure quintile had twice as many visits per capita as those in the lowest expenditure quintile.

Looking at the pattern on expenditures we see that not only do males use more health services per capita, they also spend 2.6 times as much as females. Those living in urban areas spent nearly three times per capita as those living in rural areas. Individuals in the highest expenditure quintile spent over 13 times that spent by individuals in the lowest expenditure quintile, and those who were married spent three times as much per capita as those who were widowed.

A key finding of this study is that less than 30 percent of households were able to meet the costs of health services exclusively from their own resources. Most households resorted to multiple ways to pay for health care including receiving assistance, borrowing, and selling assets. Sixty-six

percent of households received some kind of assistance, 18 percent had to borrow money to pay for care, and 5 percent had to sell assets. The high proportion of households that reported receiving assistance reflects community and church support systems that exist in Rwanda. In the absence of this assistance the impact of health expenditures would have been even more catastrophic for these families.

The study findings highlight the need for more systematic research to better understand the impact of HIV/AIDS on households. At a minimum, the findings highlight gender, income, and place of residence inequities in the use and expenditures on health services as well as the ability to mobilize non-household resources to pay for care. Clearly, policy interventions are required to address these inequities. Rwanda is one of the few countries that has developed and implemented a clearly articulated policy for dealing with the AIDS epidemic. However, given the current state of the economy, level of health expenditures, and reliance on donors for funding health costs, it is difficult to see the government being able to mobilize significant new resources to pay for treating health treatment for this population. The government should strengthen and expand its efforts to prevent the spread of this disease, and finance access to basic care for low-income groups

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